UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,043	11/06/2003	Hideki Hashizume	02410346AA	7421

30743 7590 07/07/2006

WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C.
11491 SUNSET HILLS ROAD
SUITE 340
RESTON, VA 20190

EXAMINER	
CHIEM, DINH D	

ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/702,043	HASHIZUME ET AL.	
	Examiner	Art Unit	
	Erin D. Chiem	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to Applicant's request for continuing examination filed on March 14, 2006. Currently, claims 1-15 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-7, 11-12, and 15 rejected under 35 U.S.C. 102(b) as being anticipated by Li et al. (US Patent 6,084,994). Li teaches in Figures 2, 5, and 6 a wavelength selective optical device comprising a first optical fiber 102 in which optical signals with a plurality of multiplexed wavelengths is propagated; a first graded index rod lens 120 having a first end surface thereof on which a light emitted from an end surface of the first optical fiber is incident, and a second end surface thereof from which a parallel light beam is emitted; an optical filter 130 arranged to face to the second end of the surface of the first graded index rod lens so that the parallel light beam emitted from the first graded index rod lens is incident on the optical filter; a second graded index rod lens 140 having a first end surface thereof facing to the first optical fiber; and a second optical fiber 160 arranged on a side of a second end surface of the second graded index rod lens, wherein the refractive index distribution constant of the rod lens is adjusted such that a wavelength range of the light transmitted from the optical filter is tuned within a desired range

(col. 4, lines 57-59). The Examiner, respectfully, point out that the shift of refractive index distribution constant to the desired range is the purpose of employing an optical filter such as one taught by Li.

Regarding claims 5, 11, and 15 the selection of one from a plurality of graded index rod lens groups having various different refractive index distribution constants is a mere fact of one of ordinary skill in the art when embarking on selecting the correct lens to use, the limitation is comparable to one of ordinary skill in the art to open a catalog of optical lens having various refractive index distribution constants to select from.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5-7, 11-12, and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. (US Patent 6,084,994) in view of Kittaka et al. (US 2002/0140929 A1). Li teaches in Figures 2, 5, and 6 a wavelength selective optical device comprising a first optical fiber 102 in which optical signals with a plurality of multiplexed wavelengths is propagated; a first graded index rod lens 120 having a first end surface thereof on which a light emitted from an end surface of the first optical fiber is incident, and a second end surface thereof from which a parallel light beam is emitted; an optical filter 130 arranged to face to the second end of the surface of the first graded index rod lens so that the parallel light beam emitted from the first

graded index rod lens is incident on the optical filter; a second graded index rod lens 140 having a first end surface thereof facing to the first optical fiber; and a second optical fiber 160 arranged on a side of a second end surface of the second graded index rod lens, wherein the refractive index distribution constant of the rod lens is adjusted such that a wavelength range of the light transmitted from the optical filter is tuned within a desired range (col. 4, lines 57-59). The Examiner, respectfully, point out that the shift of refractive index distribution constant to the desired range is the purpose of employing an optical filter such as one taught by Li.

However, Li does not explicitly disclose an angle of the parallel light incident on the optical filter is adjusted by changing a refractive index distribution constant of the first graded index rod lens.

Kittaka discloses the method of determining the refractive index distribution constant of a rod lens by experimentation and solving a light ray equation (par. [0006]).

Li and Kittaka are from the same field of endeavor.

The motivation for determining the refractive index distribution constant of a rod lens is to apply the rod lens in the best application when the refractive index distribution constant is known. It would have been obvious to one having ordinary skill in the art to recognize the incident light would be changed when the refractive index distribution constant of the graded index rod lens is changed since, the method disclosed by Kittaka is determined by the focus on the lens of the opposite side of the incident side. Furthermore, it is respectfully pointed out that Applicant has not functionally enabled the claim to define how the optical device changes the refractive index distribution constant of the graded index rod lens. Therefore, it would have been

obvious to one having ordinary skill in the art to provide a rod lens having the refractive index distribution constant such that it complements the desired incident light angle.

Regarding claims 5, 11, and 15 the selection of one from a plurality of graded index rod lens groups having various different refractive index distribution constants is a mere fact of one of ordinary skill in the art when embarking on selecting the correct lens to use, the limitation is comparable to one of ordinary skill in the art to open a catalog of optical lens having various refractive index distribution constants to select from.

Claims 2-4, 8-9, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Kittaka and in further view of Cearns et al. (US Patent 5,943,149).

Li and Kittaka teach in Figures 2, 5, and 6 a wavelength selective optical device comprising a first optical fiber 102 in which optical signals with a plurality of multiplexed wavelengths is propagated; a first graded index rod lens 120 having a first end surface thereof on which a light emitted from an end surface of the first optical fiber is incident, and a second end surface thereof from which a parallel light beam is emitted; an optical filter 130 formed directly on to the second end of the surface of the first graded index rod lens so that the parallel light beam emitted from the first graded index rod lens is incident on the optical filter; a second graded index rod lens 140 having a first end surface thereof facing to the first optical fiber; and a second optical fiber 160 arranged on a side of a second end surface of the second graded index rod lens, wherein the refractive index distribution constant of the rod lens is adjusted such that a wavelength range of the light transmitted from the optical filter is tuned within a desired range (col. 4, lines 57-59).

However neither Li nor Kittaka explicitly teach the optical filter is a multi-layered optical filter.

Cearns teaches a wavelength selective optical device comprising a lens 310 and directly in contact with a multilayer dielectric filter 305 and the multilayer dielectric filter is in direct contact with another lens 310 for the purpose of easy manufacturing and allows the optical arrangement to occupy less space.

Since Li, Kittaka, and Cearns are all from the same field of endeavor, the purpose disclosed by Cearns would have been recognized in the pertinent art of Li and Kittaka.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ multi-layered optical filter versus a separately independent filter such as a crystal, by directly apply the multi-layered optical filter onto the second end surface of the rod lens, similar to the optical filter directly contacted to the rod lens taught by Li. **The motivation** for employing multi-layered optical filter is for the purpose of easy manufacturing and allows the optical arrangement to occupy less space.

Response to Arguments

Applicant's arguments filed on March 14, 2006 have been fully considered but they are not persuasive.

Applicant's ONLY argument is as follows:

Applicant's invention is provides superior unexpected results over Li's invention.

Examiner's responses to Applicant's ONLY arguments are as follows:

Firstly, Applicant's claim of expected result is not evidence nor did Applicant provided the superior unexpected result.

Secondly, the amended recitation "an angle of the parallel light incident on the optical filter is adjusted by changing a refractive index distribution constant of the first graded index rod lens" has not positively define how this refractive index distribution constant is changed while the optical device is in operation. Therefore, one having ordinary skill in the art can easily replace the rod lens with one that has a complimentary refractive index distribution constant to the desired angle of light incident.

It is respectfully pointed out that since Applicant is silent to the rejections made to the dependent claims, then Applicant has acquiesced to the rejection of the dependent claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
Art Unit 2883

Frank G. Font
Supervisory Primary Examiner
Technology Center 2800